PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Masayuki MISHIMA

Appln. No.: 09/845,356

Confirmation No.: 2603

Filed: May 01, 2001

For: LIGHT-EMITTING DEVICE

Docket No: Q64324

Group Art Unit: 1774

Examiner: Marie Rose Yamnitsky

SUBMISSION OF APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. A check for the statutory fee of $500.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

Fang Liu
Registration No. 51,283

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: January 5, 2005

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of	Docket No: Q64324
Masayuki MISHIMA	
Appln. No.: 09/845,356	Group Art Unit: 1774
Confirmation No.: 2603	Examiner: Marie Rose Yamnitsky
Filed: May 01, 2001	

For: LIGHT-EMITTING DEVICE

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

Table of Contents

I. REAL PARTY IN INTEREST

The real party in interest is Fuji Photo Film Co., Ltd., the assignee of the present application. The assignment was recorded on May 1, 2001, at reel 011754, frame 0760.

II. RELATED APPEALS AND INTERFERENCES

Appellant, Appellant's counsel, and the assignee of the application are not aware of any other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

Claims 1-24 are canceled.

Claims 25-32 are pending in the application.

Claims 25-32 are rejected.

Claims 25-32 are being appealed.

Claims 25-32 are set forth in their entirety in the Claims Appendix submitted herewith.

IV. STATUS OF AMENDMENTS

On July 2, 2004, a Response Under 37 C.F.R. § 1.116 was filed in response to the final Office Action dated May 5, 2004. The claims were not amended.

The Advisory Action mailed July 12, 2004, indicates that the remarks submitted with the July 2nd Response have been considered but do not place the application in condition for allowance. The Examiner maintains her position of record. To briefly summarize, the Examiner did not deem the remarks persuasive to overcome the rejection.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

Claim 25 is drawn to a white light-emitting device. Page 4, line 17 of the specification. The white light-emitting device comprises an anode, at least one organic compound layer containing a light-emitting layer, and a cathode. Page 4, lines 22-24. The light-emitting layer comprises red, green, and blue light-emitting materials in the same light-emitting layer, and wherein at least one of the light-emitting materials is an orthometallated complex. Page 5, lines 6-19, page 5, line 24-page 6, line 2; page 9, lines 19-21 and Example 1.

Claim 29 is an independent claim. Claim 29 is also drawn to a a white light-emitting device. Page 4, line 17 of the specification. The white light-emitting device comprises an anode, at least one organic compound layer containing a light-emitting layer, and a cathode. Page 4, lines 22-24. The light-emitting layer comprises a red light emitting layer comprising a red light-emitting material, a green light emitting layer comprising a green light-emitting material, and a blue light-emitting layer comprising a blue light-emitting material in different light-emitting layers, and wherein at least one of the light-emitting materials is an orthometallated complex. Page 5, line 24-page 6, line 2; page 9, lines 22-24 and Example 3.

Claim 26-28 and 30-32 are dependent claims. Claims 26-28 depend from Claim 25 and Claims 30-32 depend from Claim 29[1].

Claims 26 and 30 contain the same substantive limitation. Specifically, Claims 26 and 30

[1] In the Amendment filed January 28, 2004, Claims 30-32 were inadvertently written to depend from Claim 28.

require that at least two of the light emitting materials are orthometallated complexes. Page 9, lines 19-24 and, e.g., page 4, line 22 - page 5, line 2.

Claims 27 and 31 contain the same substantive limitation. Specifically, Claims 27 and 31 require that all of the light emitting materials are orthometallated complexes. Example 4.

Claims 28 and 32 contain the same substantive limitation. Specifically, Claims 28 and 32 require that the red, green, and blue light emitting materials emit light, thereby obtaining white light. Page 5, lines 9-19.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issue presented for review is whether the Examiner erred in rejecting claims 25-32 under 35 U.S.C. § 103(a) over Baldo et al. in *Appl. Phys. Lett.* 75(1), pp.4-6 (July 5, 1999) or Forrest et al. (US 6,310, 360 B1), either reference in view of Egusa et al. (US 5,294,810).

VII. ARGUMENT

A. §103 Obviousness Rejection of Claims 25-32

Claims 25-32 are rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Baldo et al. in *Appl. Phys. Lett.* 75(1), pp.4-6 (July 5, 1999) or Forrest et al. (US 6,310, 360 B1), either reference in view of Egusa et al. (US 5,294,810).

It is asserted that Baldo et al. disclose light-emitting devices comprising a glass substrate, an anode, an organic compound layer including a light-emitting layer containing an orthometallated complex, and a cathode. Baldo et al. is also relied upon as disclosing a device in which the light-emitting layer contains (i) $Ir(ppy)_3$[2] and CBP[3] or (ii) $Ir(ppy)_3$ and Alq_3[4]. See the Office Action dated May 5, 2004 (hereinafter just "Office Action"), page 2, last paragraph.

Forrest et al. is relied upon as disclosing light-emitting devices comprising a glass substrate, an anode, an organic compound layer including a light-emitting layer/zone containing an orthometallated complex, and a cathode. Forrest et al. is also relied upon as disclosing, in Example 1, a light-emitting layer consisting of an alternating series of layers of CBP doped with $Ir(ppy)_3$ and CBP doped with DCM2[5]. See the Office Action, page 3, 1st paragraph.

---

[2] "$Ir(ppy)_3$" stands for tris(2-phenylpyridine) iridium, which is a green light-emitting orthometallated complex of iridium.

[3] "CBP" stands for 4,4'-N,N'-dicarbazole-biphenyl.

[4] "Alq_3" stands for tris-(8-hydroxyquinoline) aluminum.

[5] "DCM2" stands for 2-methyl-6-[2-(2,3,6,7-tetrahydro-1H,5H-benzo[ij]quinolizin-9-yl)ethenyl]-4H-pyran-ylidene]propane dinitrile, which is a red light-emitting material.

According to the Examiner's statement, Baldo et al. and Forrest et al. disclose devices comprising more than one light-emitting material, each of the materials capable of emitting light of a different color, wherein one of the materials is an orthometallated complex. In particular, in Baldo's device, a single light-emitting layer contains green and blue light-emitting materials. In Forrest's device of Example 1, green and blue-light emitting materials are contained in one light-emitting layer while red and blue-light emitting materials are contained in a second light-emitting layer. See the Office Action, paragraph bridging pages 3 and 4.

The Examiner notes (i) that the prior art devices of Baldo et al. or Forrest et al. do not comprise red, green and blue light-emitting materials mixed in a single layer, and do not comprise separate red, green and blue light emitting layers; (ii) that the prior art devices of Baldo et al. or Forrest et al. do not emit white light; and (iii) that in the devices of Baldo et al. or Forrest et al., the light-emitting layer(s) comprise(s) only one orthometallated complex. See the Office Action, page 4, 1st and 2nd full paragraphs.

Egusa et al. is relied upon as disclosing a light-emitting device comprising more than one light-emitting layer wherein different light-emitting materials may be mixed in a light-emitting layer in order to control light-emission wavelength and the mixture may include a phosphorescent material. Egusa et al. is further relied upon as teaching that it is possible to achieve emission of white light from a device comprising multiple light-emitting layers and from a device comprising a mixture of light-emitting materials. See the Office Action, paragraph bridging pages 4 and 5.

The Examiner concludes that it would have been an obvious modification to one of ordinary skill in the art at the time of the invention to provide light-emitting devices similar to those disclosed by Baldo et al. or Forrest et al. but utilizing different and/or additional light-emitting materials in combination with an iridium complex either in the same layer or in a light-emitting layer separate from the layer comprising the iridium complex, motivation being to have the advantages of using a phosphorescent material as taught by Baldo et al. or Forrest et al. while at the same time being able to modify the color of light emitted by the device as taught by Egusa et al. The Examiner further asserts that it is a matter of routine experimentation to determine suitable and optimum combinations of light-emitting materials selected from known light-emitting materials so as to obtain a functional device capable of emitting light of the color(s) desired, such as white light. See the Office Action, page 5, 1st full paragraph; paragraph bridging pages 5 and 6; and page 6, 1st full paragraph.

The Examiner's ultimate reasoning as set forth in the paragraph bridging pages 6/7 of the Action as follows. Baldo et al. or Forrest et al. establish that an orthometallated complex as required by the present claims was known in the art at the time of the invention to be a suitable light-emitting material for an organic EL device. Egusa et al. establish that it was known in the art at the time of the invention that organic EL devices that emit white light can be obtained by selecting an appropriate combination of light-emitting materials, including combinations of red, green and blue light-emitting materials, and also establish that it was known in the art at the time of the invention that materials exhibiting phosphorescent emission can be used in a mixture of light-emitting materials when making an organic EL device. The Examiner asserts that the

orthometallated complex used in Baldo et al. and Forrest et al. exhibits phosphorescent emission.

The Examiner urges Egusa et al. provide motivation to use red, green and blue light-emitting materials in order to provide a device capable of emitting white light, and either of Baldo et al. or Forrest et al. provide motivation to use an orthometallated complex as a light-emitting material. The Examiner's position is that the motivation to combine the references lies in the advantages to be attained by the use of an orthometallated iridium complex as taught by either Baldo et al. or Forrest et al. while being able to modify the color of light emitted from the device as taught by Egusa et al.

B. The Error in the Rejection

The error in the rejection is that Baldo et al. and Forrest et al., each in view of Egusa et al., do not establish a *prima facie* case of obviousness. In particular, there is no motivation to combine Baldo et al. or Forrest et al. and Egusa et al. Alternatively, the combinations would not result in the white light-emitting device of the present invention.

C. Overview / Summary of Position

The primary references fail to teach or suggest using different and/or additional light-emitting materials either in the same layer or in a light-emitting layer separate from the layer comprising the iridium complex.

Assuming the primary references may be capable of being modified so as to result in the claimed invention, there must be some teaching, suggestion or motivation in the prior art references to do so. There is no such teaching, motivation or suggestion in the prior art.

Why would one of ordinary skill in the art be motivated to utilize different and/or additional light-emitting materials in combination with an iridium complex to provide a device having the advantages of using a phosphorescent material as taught in the primary references while at the same time modifying the color of light emitted by a device as taught by Egusa et al?

The answer is there is no sound reason of record for combining the references in the manner proposed by the examiner, i.e., the Examiner advances no reason why the device of the proposed combination of references would or could emit white light. There is no basis in fact and/or technical reasoning to support the Examiner's position, only subjective belief.

The Examiner's conclusion that Egusa et al. provide motivation to use red, green and blue light-emitting materials to provide a device capable of emitting white light finds no basis on the record.

Egusa et al. only disclose that the light-emission intensities of red, green and blue can be controlled, thereby obtaining white light emission in the same layer (column 26, lines 25-28). Egusa et al. do not disclose expressly using red, green and blue light-emitting materials. While Egusa et al. disclose blue-emitting and yellow-emitting agents in a different layer utilizing high biasing voltage to emit white light (column 27, lines 57-64), this is not a disclosure of using red, green and blue light-emitting materials.

While Appellant sees no motivation, suggestion or teaching to combine the primary references and Egusa et al., assuming arguendo that there is motivation, the combination does not result in a white light-emitting device as claimed.

Baldo et al.: While the Baldo et al. device comprises CBP doped with $Ir(ppy)_3$, as a green light-emitting material in a single light-emitting layer, Baldo et al. admit blue emission from CBP is negligible (Abstract, page 6, left column, 2nd paragraph) in order for Baldo et al. to achieve efficient transfer. Thus, the use of CBP in Baldo et al. militates against the use of CBP as proposed by the Examiner as a blue light-emitting material. Per the Examiner, in Baldo et al. CBP would have to serve as a blue light-emitting material. However, the purpose of Baldo et al. is to achieve efficient transfer using CBP. If CPB were to emit blue light without energy transfer, the Examiner's proposed modification would render Baldo et al. unsatisfactory for its intended purpose.[6]

Forrest et al.: Forest et al. teach $Ir(ppy)_3$ is the sensitizer/ISC agent in Example 1 and that a separate intersystem crossing ("ISC") molecule which enhances the efficiency of the emission (col. 12, lines 20-22) and sensitizer are from phosphorescent organometallic complexes (col 12, lines 63-64). Thus, the use of $Ir(ppy)_3$ in Forrest et al. is against the use of $Ir(ppy)_3$ proposed by the Examiner as a red light-emitting material. If the modification proposed by the Examiner were to be applied to the Forrest et al. device, $Ir(ppy)_3$ would be a red light-emitting material. However, the purpose of Forrest et al. is to enhance efficiency of the emission by DCM2 (col. 11, lines 55-60) using $Ir(ppy)_3$. If $Ir(ppy)_3$ were to be used to emit red light without sensitization, the Examiner's proposed modification would render Forrest et al. as modified unsatisfactory for

[6] Though the Examiner is correct that green and blue will make cyan, the fact is that green emission (Fig. 4) (further comprising a red light-emitting material in a light-emitting layer as proposed by the Examiner) would make it questionable whether the modified device could emit white light.

its intended purpose. Clearly, there is no suggestion or motivation to make the proposed modification.

Picking and choosing from Baldo et al. to reach a Baldo et al. device comprising CBP doped with $Ir(ppy)_3$ in a single light-emitting layer containing green and blue light-emitting materials and to dismiss the function of CBP as a efficient-energy transfer agent distorts what Baldo et al. fairly suggest as a reference.

Moreover, picking and choosing from Forrest et al. to reach green and blue-light emitting materials contained in one light-emitting layer while red and blue-light emitting materials are contained in a second light-emitting layer and to dismiss the function of $Ir(ppy)_3$ as a sensitizer/ISC agent distorts what Forrest et al. fairly suggest as a reference.

The Examiner's "routine experimentation" analysis is also flawed. The modifications to Baldo et al. the Examiner proposes would render the disclosed inventions so modified unsatisfactory for their intended purpose. Nothing of record in the primary or secondary art supports such a modification.

D. Claims 25-32 are Patentable Over Baldo et al. in View of Egusa et al.

Baldo et al. disclose a luminescent layer containing $Ir(ppy)_3$ with CBP in the same layer. As noted by the Examiner, Baldo et al. do not disclose using all of red, green and blue light-emitting materials in the same layer. Further, Baldo et al. describe that blue emission from CBP is negligible as to achieve efficient energy transfer. See page 6 of Baldo et al., left column, 2nd paragraph. That is, CBP is not a blue light-emitting material in the Baldo et al. device.

Still further, the spectrum of the Commission Internationale de L'Eclairage (CIE) chromaticity coordinates have x = 0.27 and y = 0.63, which is not white emission. The white point is x = 0.33 and y = 0.33. That is, Baldo et al. do not disclose a white light-emitting device, as noted by the Examiner.

Egusa et al. do not explicitly disclose using a combination of red, green and blue light-emitting materials in the same layer or different layers. Further, as the Examiner noted, Egusa et al. do not disclose an orthometallated complex. Egusa et al. merely teach that the light emission intensities of red, green and blue can be controlled, thereby efficiently obtaining white light emission. See col. 26, lines 26-28.

Furthermore, Egusa et al. do not disclose white emission by using red, green and blue light-emission materials in combination. In Egusa et al., the second dye emits phosphorescence via energy transfer from the first dye. See column 26, lines 43-45 and 63-66. For this reason, Egusa et al. do not teach using the first dye as a light-emission material.

To establish a *prima facie* case of obviousness, the Examiner must show three criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine reference teachings. *See In re Thrift*, 298 F.3d 1357, 136, 63 USPQ2d 2002 (Fed. Cir. 2002). Second, there must be a reasonable expectation of success. *See In re Inland Steel Co.*, 265 F.3d 1354, 1362-64, 60 USPQ2d 1396 (Fed. Cir. 2001). Finally, the prior art references must teach or suggest all the claim limitations. *See In re Royka,* 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be

found in the prior art and not be based on Applicants' disclosure. *See In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438 (Fed. Cir. 1991); Manual of Patent Examining Procedure § 706.02(j).

Further, "There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet,* 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998).

Still further, if proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon,* 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); Manual Patent Examining Procedure § 2143.01.

1. There Is No Motivation to Combine Baldo et al. and Egusa et al.

In the present case, as the Examiner noted, Baldo et al. fail to teach or suggest using different and/or additional light-emitting materials either in the same layer or in a light-emitting layer separate from the layer comprising an iridium complex.

Egusa et al. merely disclose that the light-emission intensities of red, green, and blue can be controlled, thereby efficiently obtaining white light emission in the same layer. However, Egusa et al. do not disclose or suggest the use of red, green and blue light-emitting materials to obtain white light emission.[7] The Examiner has not provided any explanation to support a

[7] It is noted that Egusa et al. disclose that a device having a blue emitting agent and a yellow emitting agent in a different layer utilizing high biasing voltage emits white light. See col. 20, lines 57-61.

conclusion that "the light-emission intensities of red, green, and blue" as described in Egusa et al. equate to "red, green and blue light-emitting materials."

Accordingly, Appellant respectively submits that there would not have been any motivation to modify the light-emitting device in Baldo et al. by adding other light-emitting materials to obtain white-light emission, in light of the disclosure of Egusa et al.

2. The Combination of Baldo et al. and Egusa et al. Does Not Result In the Present Invention

Assuming *arguendo* that there might be motivation to combine Baldo et al. and Egusa et al., Appellant respectfully submits that the combination would not be the white light-emitting device of the present invention.

Specifically, the Baldo et al. device comprises CBP (a blue light-emitting material) doped with $Ir(ppy)_3$ (a green light-emitting material). However, Baldo et al. clearly describe that blue emission of CBP is negligible in order to obtain efficient transfer. That is, the use of CBP in Baldo et al. is different from the use of CBP as a blue light-emitting material as asserted by the Examiner.

Therefore, even if one of ordinary skill in the art might be motivated to add a red light-emitting material in the Baldo et al. device which in fact emits green light only (see Figure 4) as suggested by the Examiner, there would not have been a reasonable expectation that the modified device can emit white light. There is no technical support, rather the Examiner's mere subjective belief, that the combination would be the white-emitting device.

Further, when CBP serves as a blue light-emitting material, it emits blue light without energy transfer. Such use of CBP will render unsatisfactory Baldo et al.'s intended purpose of obtaining efficient transfer by using CBP. For this reason, Appellant respectfully submits that one of ordinary skill in the art would not have been motivated to modify Baldo et al. by using CBP as a blue light-emitting material.

Appellant respectfully disagrees with the Examiner's assertion that the selection of suitable and optimum combinations of red, green and blue light-emitting materials from known materials in order to achieve white light would have been within the level of ordinary skill of a worker in the art at the time of the invention as a matter of routine experimentation. As mentioned above, modification of Baldo et al. as asserted by the Examiner would render the Baldo et al. invention unsatisfactory for its intended purpose. For this reason, Appellant does not believe the selection of suitable and optimum combinations of red, green and blue light-emitting materials could be carried out routinely by persons of ordinary skill in the art.

E. Claims 25-32 are Patentable Over Forrest et al. in View of Egusa Et al.

Forrest et al. disclose different luminescent layers containing either $Ir(ppy)_3$ complexed with CBP or DCM2 with CBP in different layers. Forrest et al. describe improving the efficiency of fluorescence processes using a phosphorescent sensitizer molecule to excite a fluorescent material in a red-emitting organic light emitting device (OLED). See col. 6, line 63-col. 7, line 9 of Forrest.

Like Baldo et al., Forrest et al. do not disclose using red, green and blue light-emitting materials in the same layer or different layers, as noted by the Examiner. As described above,

the device of Forrest et al. is a red emission OLED, not a white emission OLED. In Forrest et al., $Ir(ppy)_3$ acts as a phosphorescent sensitizer and there is no blue light-emission material.

Egusa et al. do not explicitly disclose using a combination of red, green and blue light-emitting materials in same layer or different layers. Further, as the Examiner noted, Egusa et al. do not disclose an orthometallated complex. Egusa et al. merely teach that the light emission intensities of red, green and blue can be controlled, thereby efficiently obtaining white light emission. See col. 26, lines 26-28.

Furthermore, Egusa et al. do not disclose white emission by using red, green and blue light-emission materials in combination. In Egusa et al., the second dye emits phosphorescence via energy transfer from the first dye. See column 26, lines 43-45 and 63-66. For this reason, Egusa et al. do not teach using the first dye as a light-emission material.

To establish a *prima facie* case of obviousness, the Examiner must show three criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine reference teachings. *See In re Thrift*, 298 F.3d 1357, 1363, 63 USPQ2d 2002 (Fed. Cir. 2002). Second, there must be a reasonable expectation of success. *See In re Inland Steel Co.*, 265 F.3d 1354, 1362-64, 60 USPQ2d 1396 (Fed. Cir. 2001). Finally, the prior art references must teach or suggest all the claim limitations. *See In re Royka,* 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The teaching or suggestion to make the claimed invention and the reasonable expectation of success must both be found in the prior art and not be based on Applicants' disclosure. *See In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438 (Fed. Cir. 1991); Manual of Patent Examining Procedure § 706.02(j).

Further, "There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." *In re Rouffet,* 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998).

Still further, if proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon,* 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984); Manual Patent Examining Procedure § 2143.01.

1. There Is No Motivation to Combine Forrest et al. and Egusa et al.

As the Examiner has noted, Forrest et al. fail to teach or suggest using different and/or additional light-emitting materials either in the same layer or in a light-emitting layer separate from the layer comprising the iridium complex.

Egusa et al. merely disclose that the light-emission intensities of red, green, and blue can be controlled, thereby efficiently obtaining white light emission in the same layer. However, Egusa et al. do not disclose or suggest the use of red, green and blue light-emitting materials to obtain white light emission.[8] The Examiner has not provided any explanation to support a conclusion that "the light-emission intensities of red, green, and blue" as described in Egusa et al. equate to "red, green and blue light-emitting materials."

[8] It is noted that Egusa et al. disclose that a device having a blue emitting agent and a yellow emitting agent in a different layer utilizing high biasing voltage emits white light. See col. 20, lines 57-61.

Accordingly, Appellant respectively submits that there would not have been any motivation to modify the light-emitting device in Forrest et al. by adding other light-emitting materials to obtain white-light emission, in view of the disclosure of Egusa et al.

2. Combination of Forrest et al. and Egusa et al. Does Not Result In the Present Invention

Assuming *arguendo* that there might be motivation to combine Forrest et al. and Egusa et al., Appellant respectfully submits that the combination would not be the white light-emitting device of the present invention.

The Examiner asserts that in the Forrest et al. device (Example 1), green and blue-light emitting materials are contained in one light-emitting layer while red and blue-light emitting materials are contained in a second light-emitting layer. However, in Forrest et al., $Ir(ppy)_3$ was used as a sensitizer/ISC agent in Example 1. Forrest et al. describe a separate intersystem crossing ("ISC") molecule which operates to enhance the efficiency of the emission selected from the group of phosphorescent organometallic complexes. See col. 12, lines 20-22 and 63-64. Thus, the use of $Ir(ppy)_3$ in Forrest et al. is different from the use of $Ir(ppy)_3$ as a green light-emitting material, as asserted by the Examiner.

Further, when $Ir(ppy)_3$ serves as a green light-emitting material, it emits green light without sensitization, which would render unsatisfactory the Forrest et al. intended purpose of enhancing the efficiency of the emission by DCM2 by using $lr(ppy)_3$. For this reason, Appellant respectfully submits that one of ordinary skill in the art would not have been motivated to modify the Forrest et al. device by using $Ir(ppy)_3$ as a green light-emitting material.

Appellant respectfully disagrees with the Examiner's assertion that the selection of suitable and optimum combinations of red, green and blue light-emitting materials from known materials in order to achieve white light would have been within the level of ordinary skill of a worker in the art at the time of the invention as a matter of routine experimentation. As mentioned above, modification of Forrest et al. as asserted by the Examiner would render the Forrest et al. invention unsatisfactory for its intended purposes. For this reason, Appellant does not believe the selection of suitable and optimum combinations of red, green and blue light-emitting materials could be carried out routinely by persons of ordinary skill in the art.

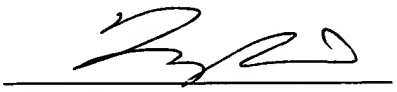
F. Conclusion

In view of the foregoing reasons, Appellant respectfully submits that the present invention is patentable over Baldo et al. or Forrest et al., either in view of Egusa et al., and that the rejections are improper and should be reversed.

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37 and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Fang Liu
Registration No. 51,283

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: January 5, 2005

CLAIMS APPENDIX

CLAIMS 25-32 ON APPEAL:

25. A white light-emitting device comprising an anode, at least one organic compound layer containing a light-emitting layer, and a cathode,

wherein the light-emitting layer comprises red, green, and blue light-emitting materials in same light-emitting layer, and wherein at least one of the light-emitting materials is an orthometallated complex.

26. A white light-emitting device of claim 25, wherein at least two of the light emitting materials are orthometallated complexes.

27. A white light-emitting device of claim 25, wherein all of the light-emitting materials are orthometallated complexes.

28. A white light-emitting device of claim 25, wherein the red, green, and blue light-emitting materials emit light, thereby obtaining white light.

29. A white light-emitting device comprising an anode, at least one organic compound layer containing a light-emitting layer, and a cathode,

wherein the light-emitting layer comprises a red light emitting layer comprising a red light-emitting material, a green light emitting layer comprising a green light-emitting material, and a blue light-emitting layer comprising a blue light-emitting material in different light-emitting layers, and wherein at least one of the light-emitting materials is an orthometallated complex.

30. A white light-emitting device of claim 29, wherein at least two of the light-emitting materials are orthometallated complexes.

31. A white light-emitting device of claim 29, wherein all of the light-emitting materials are orthometallated complexes.

32. A white light emitting device of claim 29, wherein the red, green, and blue light emitting materials emit light, thereby obtaining white light.

EVIDENCE APPENDIX:

Pursuant to 37 C.F.R. § 41.37(ix), submitted herewith are copies of any evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 or any other evidence entered by the Examiner and relied upon by Appellant in the appeal.

NONE

RELATED PROCEEDINGS APPENDIX

Submitted herewith are copies of decisions rendered by a court or the Board in any proceeding identified about in Section II pursuant to 37 C.F.R. § 41.37(c)(1)(ii).

NONE